sixteen seeds were scattered toward the wind, the nearest at two inches, and with twelve between thirty-five and forty-three inches; and thirty went with the wind from eight to forty-seven inches away. Later the nearest were a few at four inches and more than sixty were scattered between twenty-three and thirty-six inches. Other observations taken at the same time on seeds of verbascum, dipsacus, and polanisia while less definite were nevertheless of the same general significance. Later observations on a new œnothera plant thirty inches high and with lowest pods eleven inches from the ground, extending over a longer period and with stronger winds, showed at one time the nearest seed alone at twenty-two and one-half inches from the plant stem, and upwards of 160 scattered over the sheet, being very numerous at the extreme limit, thirteen feet. At another time they were found in large numbers from four feet to the extreme limit.

During the same period observations upon *Datura Stramonium* with its erect prickly capsules and large pitted seeds gave the following results: one seed at five feet, one at four, and one at four and one-half; later one at one foot, twenty-two from two and one-half to seven and one-half feet; still later, fourteen scattered from twenty inches to ten feet, with perhaps the majority at about six feet. This plant was forty-four inches high with its lowest pods twenty-seven inches from the ground.

Thus, this modification is seen to be very effective. Its importance is realized when one notes that in the Cayuga flora seventy-five genera are so disseminated. These genera are scattered through widely separated families from the Juncaceæ to the Lobeliaceæ being especially abundant among the Scrophulariaceæ and the Caryophyllaceæ and quite numerous also in the Ranunculaceæ and Ericaceæ. Furthermore other modifications with similar effects occur; upright heads, the achenes often provided with embracing chaff, drooping pods opening only at the base, and persistent ascending calyx and bracts opening only upward.—MARGARET FURSMAN BOYNTON.

Some western weeds, and alien weeds in the west.—A paper by Prof. L. H. Pammel, in a volume of the Proc. Iowa Acad. Sci., leads me to offer a few remarks. Prof. Pammel discusses in detail the distribution of certain weeds, and points out how little has been done to record the spread of introduced plants in this country. Two of the species thus discussed are *Solanum rostratum* and *S. Carolinense*. The latter species is not cited from Colorado or New Mexico, nor had I ever seen it in these regions, until this year I gathered it in an orchard at Albuquerque, N. M. The case of *S. rostratum* is widely

different, since it is a native of the west. Yet the only New Mexico record is one of Fendler, 1847! Prof. E. O. Wooton has found it at Riley's Ranch, on the west side of the Organ Mts., N. M., and I have observed it at Santa Fé; thus in New Mexico we get a vertical range of 2,000^{ft}, viz., from 5,000 to 7,000. In Arizona Prof. Wooton found it at the Hardy water tank, eight miles east of Winslow; and this is actually the first specific locality in that territory, according to Mr. Pammel's account. This is also apparently the most western locality on record, as it is not reported from California, and was not found by the Death valley expedition. The first time I ever found *S. rostratum* was at Oxford, Furnas co., Nebraska, in July, 1887. In Colorado, while it is common on the plains at the eastern foot of the mountains, at least from Denver to La Junta (where I found it this year), it does not ascend into the mid-alpine zone. There is another *Solanum* which shares with *S. rostratum* the credit (or discredit) of being the original food of the Colorado potato-beetle, namely, *S. elæagnifolium*. This is in New Mexico a species of the upper and middle Sonoran zones, going up the Rio Grande valley, to my knowledge, from El Paso to Bernalillo, in great abundance. It does not occur in the Transition, at Santa Fé, except that this year I found there a single patch of it, growing vigorously. The characteristic species of *Solanum* at Santa Fé are *S. Jamesii* and *S. triflorum*, the former especially abundant. *S. Jamesii* I have never observed in Colorado, but *S. triflorum* is the common species of the mid-alpine zone, in Wet mountain valley.

At Santa Fé one finds many European weeds. It is probable that their presence is mainly due to the zeal with which the late Archbishop Lamy imported plants from France, the weeds coming accidentally with them. I found *Senecio vulgaris* quite abundant, also *Sonchus oleraceus* and *Plantago major*. *Erodium cicutarium* was found, and plenty of a dock which appears to be nothing but *Rumex obtusifolius*. There is also a large purple flowered Tragopogon in quantity; it can only be *T. porrifolius*, I assume. Finally, I was quite pleased to come across a good patch of *Convolvulus arvensis*.—T. D. A. Cockerell, *Agric. Exper. Station, Las Cruces, New Mexico.*